

REMARKS

The undersigned thanks the Examiner for the interview of June 17, 2003. During the interview, the Examiner agreed that there is no explicit suggestion or motivation in the cited references, either alone or in combination, that teaches or suggests a combination of an oxidized seedlayer for providing a fine grain size and a non-oxidized underlayer for providing a good corrosion resistance. This invention provides *two* benefits by the combination of an oxidized seedlayer and a non-oxidized underlayer. Persons of ordinary skill in this art did not recognize either such a combination or the benefits of such a combination.

The amendments are supported in the specification on page 18, lines 4-9.

Claims 1, 2, 6, 7, 9, 11, 12, 16, 17, 19 and 20 were rejected as being obvious over Tanahashi in view of Suzuki and Bertero. This rejection is respectfully traversed.

The magnetic recording medium of this invention uses an oxidized seedlayer for increasing the number of nucleation sites of the grains of magnetic layer because the influence of the increased nucleation sites on the seedlayer is exerted up to the magnetic layer. Furthermore, Applicants unexpectedly found that the bcc-hcp interface is highly vulnerable to corrosion due the oxygen diffusion from the oxidized seedlayer. To solve this problem, Applicants found that the use of a non-oxidized Cr-containing layer between the oxidized seedlayer and the HCP layer solves the oxygen corrosion problem. Unexpectedly, the Cr-containing layer between the oxidized seedlayer and the HCP layer functions as a corrosion inhibitor.

Corrosion is electrochemical in nature. *McGraw Hill Encyclopedia of Science & Technology*, Vol. 7, 159 (1982). Local electrolytic cells are set up because of the presence of impurities, crystal lattice imperfections, or strains within the metal surface. *Id.* Because of a multitude of reasons for corrosion and a multitude of corrosion inhibitors, persons of ordinary

skill in this art would have *no* technical reason to conclude that a non-oxidized Cr-containing layer between the oxidized seedlayer and the HCP layer would solve the oxygen corrosion problem at the interface of the HCP layer.

Furthermore, persons of ordinary skill in this art would *not* have recognized that a non-oxidized underlayer performs as corrosion inhibitor *in the environment* in which it located. As explained above, corrosion is due to “[l]ocal electrolytic cells.” *Id.* Therefore, what could function as a corrosion inhibitor in a certain local environment would not necessarily function similarly in a different local environment. Therefore, it would be just hypothetical to assume that a person of ordinary skill would have selected the combination of an oxidized seedlayer with a non-oxidized underlayer.

In short, Applicants respectfully submit that there is no suggestion or motivation in the cited references to combine an oxidized seedlayer directly in contact with the substrate with a non-oxidized underlayer as recited in the claims. During the interview of June 17, 2003, the Examiner acknowledged that there is *no* explicit teaching in the cited references to combine an oxidized seedlayer directly in contact with the substrate with a non-oxidized underlayer as recited in the claims. The Examiner stated that he would check for any “implicit” teaching to this effect in the cited references.

On the issue of combining references, the Federal Circuit in *In re Sang Su Lee*, 277 F.3d, 1338, 61 USPQ2d 1430 (Fed. Cir. 2002), specifically states, “The need for specificity pervades this authority ... [and] *particular findings* [not just any reason] *must* be made as to the reason the skilled artisan, with *no* knowledge of the claimed invention, would have selected these components for combination in the manner claimed.” [Citations omitted; emphasis added.] The Examiner reviewed MPEP 2144.03 and said that he recognized that in light of *In re Sang Su Lee*

and *In re Zurko*, 258 F.3d 1379, 1385 59 USPQ2d 1693, 1697 (Fed. Cir. 2001), MPEP 2144.03 specifically states, “It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known.” [Emphasis in original.] The Examiner said that he would further consider the amended claims in light of MPEP 2144.03.

Even assuming that the Examiner has established a *prima facie* case of obviousness, which Applicants deny, the Federal Circuit in *In re Dillon*, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990), *cert. denied*, 500 U.S. 904 (1991) clearly stated that an Applicant could rebut a *prima facie* case of obviousness by a showing of *unexpected results*. As a result of combining an oxidized seedlayer with a non-oxidized underlayer as recited in the claims, Applicants found the following *unexpected results*:

(1) As mentioned above, oxygen corrosion was minimized by the use of a non-oxidized underlayer. See page 18, lines 4-9, which states:

The non-oxidized underlayer could maintain the texture throughout the multilayer structure and yet prevent direct contact of the oxidized Cr-X seedlayer with the magnetic layer. If the oxidized Cr-X layer is near or in direct contact with the magnetic layer, there is a possibility that the oxygen migration into the magnetic layer could be high enough to detract the recording performance.

(2) As shown in Table 1, the grain size distribution (represented by standard deviation/mean) was decreased from 2.7 for a non-oxidized seedlayer to 2.2 for an oxidized seedlayer. Thus, “Fig. 3 shows that by using an embodiment of this invention one is able to improve the intrinsic noise capability of a recording medium. Fig. 4 shows that the grain size is refined and is made more uniform when using an embodiment of this invention.” Page 16, lines 15-18.

Please note, “Consistent with the rule that all evidence of nonobviousness *must* be considered when assessing patentability, the PTO *must* consider comparative data in the specification in determining whether the claimed invention provides unexpected results.” *In re Soni*, 54 F.2d 746, 34 USPQ2d 1684 (Fed. Cir. 1995) (emphasis added).

Applicants submit that the only way that persons of ordinary skill in this art would have recognized that the combination of an oxidized seedlayer with a non-oxidized underlayer as recited in the claims allows for both the control of nucleation and prevention of oxygen corrosion is from Applicants’ disclosure. This, of course, can not be properly relied upon to support the ultimate legal conclusion of obviousness under 35 USC 103. *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d 1082, 227 USPQ 337 (Fed. Cir. 1985).

In short, the obviousness rejection of claims 1, 2, 6, 7, 9, 11, 12, 16, 17, 19 and 20 were rejected as being obvious over Tanahashi in view of Suzuki and Bertero should be withdrawn.

Claims 8, 10 and 18 were rejected as being obvious over Tanahashi as modified by Bertero and Suzuki further in view of Ivett. This rejection is respectfully traversed.

Claims 1 and 10, as amended, should now be allowable over Tanahashi in view of Suzuki and Bertero. Therefore, claims 8, 10 and 18 should be allowable over Tanahashi as modified by Bertero and Suzuki further in view of Ivett.

In light of the above, a Notice of Allowance is respectfully solicited.

Attached hereto is a marked-up version of the changes made to the specification by this amendment. The attached pages are captioned “Version with markings to show changes made.”

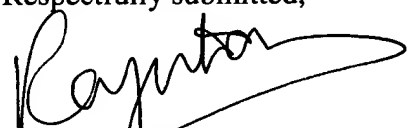
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Respectfully submitted,

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